

This listing of claims will replace the prior version in the application.

Claims

1. (Currently amended) Process for preparing a mercaptan from comprising contacting an olefin and hydrogen sulphide, characterized in that it is carried out in the presence of hydrogen and a catalyst composition comprising a strong acid and at least one metal belonging to selected from group VIII of the Periodic Table.

2. (Currently amended) Process according to Claim claim1, characterized in that wherein the strong acid is selected from the group consisting of:

- (a) one or more heteropolyacids selected from[:
 - (i) a compound of formula:] the group $H_3PW_{12}O_{40}\cdot nH_2O$, $H_4SiW_{12}O_{40}\cdot nH_2O$ or $H_6P_2W_{18}O_{62}\cdot nH_2O$, in which n is an integer representing the number of molecules of water of crystallization, and is between 0 and 30, preferably between 6 and 20;
 - (ii) a potassium, rubidium, caesium or ammonium salt salts thereof of at least one compound (i), or a mixture and mixtures of such salts;
- (b) a sulphated zirconium oxide,
- (c) a tungstic zirconium oxide,
- (d) a zeolite, and
- (e) a cationic resin.

3. (Currently amended) Process according to Claim 2 claim 1, wherein characterized in that the strong acid is selected from the group potassium, rubidium, caesium or ammonium salts or a mixture of such salts of $H_3PW_{12}O_{40}\cdot nH_2O$, $H_4SiW_{12}O_{40}\cdot nH_2O$ or $H_6P_2W_{18}O_{62}\cdot nH_2O$, in which n is an integer representing the number of molecules of water of crystallization, and is between 0 and 30, a sulphated zirconium oxide, a tungstic zirconium oxide, a zeolite, and a cationic resin, a heteropolyaci (ii), or one of the compounds (b), (c), (d) or (e).

4. (Currently amended) Process according to Claim 3claim 1, characterized in that wherein the catalyst composition comprises:

- from 90% to 99.9%, ~~preferably from 98.5% to 99.5%~~, by weight of strong acid, and

- from 0.01% to 10%, ~~preferably from 0.05% to 1.5%~~, by weight of at least one metal from group VIII.

5. (Currently amended) Process according to Claim 2~~claim 1~~, characterized in that wherein the strong acid is a heteropolyacid ~~(+)~~ selected from the group $H_3PW_{12}O_{40} \cdot nH_2O$, $H_4SiW_{12}O_{40} \cdot nH_2O$ or $H_6P_2W_{18}O_{62} \cdot nH_2O$, in which n is an integer representing the number of molecules of water of crystallization, and is between 0 and 30.

6. (Currently amended) Process according to Claim 5~~claim 1~~, characterized in that wherein the catalyst composition comprises:

- from 10% to 60%, ~~preferably from 25 to 50%~~, by weight of strong acid,
- from 0.01% to 10%, ~~preferably from 0.1% to 2%~~, by weight of at least one metal from group VIII, and

- from 30% to 80%, ~~preferably from 48% to 75%~~, by weight of a support selected from silica SiO_2 , alumina Al_2O_3 , titanium dioxide TiO_2 , zirconium oxide ZrO_2 , and activated carbon.

7. (Currently amended) Process according to either of Claims 5 and claim 6, characterized in that wherein the strong acid is 12-phosphotungstic acid, preferably impregnated on silica.

8. (Currently amended) Process according to one of Claims 1 to 7~~claim 1~~, characterized in that wherein the at least one metal is selected from iron, cobalt, nickel, ruthenium, rhodium, palladium, osmium, iridium, and platinum.

9. (Currently amended) Process according to Claims 1 to 8~~claim 1~~, characterized in that wherein the at least one metal is selected from palladium, ruthenium, and platinum.

10. (Currently amended) Process according to one of Claims 1 and 9~~claim 1~~, characterized in that wherein the at least one metal is platinum.

11. (Currently amended) Process according to ~~one of Claims 1 and 5 to 10, characterized in that claim 1, wherein~~ the catalyst composition comprises approximately 40% by weight of 12-phosphotungstic acid, 1% of platinum and 59% of silica.
12. (Currently amended) Process according to ~~one of Claims 1 to 11, characterized in that claim 1, wherein~~ the hydrogen is introduced in an amount corresponding to a molar H₂S/H₂ ratio of between 0.05 and 200, ~~preferably between 0.1 and 100.~~
13. (Currently amended) Process according to ~~one of Claims 1 to 12, characterized in that claim 1, wherein~~ the olefin used has the general formula:
- $$R_1 R_2 C = CR_3 R_4 \quad (I)$$
- in which R₁, R₂, R₃, R₄, which are identical or different, represent a hydrogen atom or a linear or branched alkyl radical of 1 to 20 carbon atoms, ~~preferably 1 to 12 carbon atoms,~~
14. (Currently amended) Process according to ~~one of Claims 1 to 13, characterized in that claim 1, wherein~~ the olefin used is ethylene.
15. (Currently amended) Process according to ~~one of Claims 1 to 14, characterized in that claim 1, wherein~~ the hydrogen sulphide is introduced in an amount corresponding to a molar H₂S/olefin ratio of between 1 and 100, ~~preferably between 2 and 30, more preferably between 2 and 12.~~
16. (New) Process according to claim 1, wherein the catalyst composition comprises:
- from 98.5% to 99.9%, by weight of strong acid, and
 - from 0.05% to 1.5%, by weight of at least one metal from group VIII.
17. (New) Process according to claim 5, wherein the catalyst composition comprises:
- from 25 to 50%, by weight of strong acid,
 - from 0.1% to 2%, by weight of at least one metal from group VIII, and
 - from 48% to 75%, by weight of a support selected from silica SiO₂, alumina Al₂O₃, titanium dioxide TiO₂, zirconium oxide ZrO₂, and activated carbon.

18. (New) Process according to claim 1, wherein the hydrogen is introduced in an amount corresponding to a molar H₂S/H₂ ratio of between 0.1 and 100.
19. (New) Process according to claim 1, wherein the hydrogen sulphide is introduced in an amount corresponding to a molar H₂S/olefin ratio of between 2 and 30.
20. (New) Process according to claim 1, wherein the hydrogen sulphide is introduced in an amount corresponding to a molar H₂S/olefin ratio of between 4 and 12.
21. (New) Process according to claim 1, wherein n is between 6 and 20.
22. (New) Process according to claim 7, wherein said 12-phosphotungstic acid is impregnated on silica.
23. (New) Process according to claim 13, wherein said linear or branched alkyl radical has 1 to 12 carbon atoms.

Respectfully submitted,



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